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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/626,981	07/27/2000	Douglas Melton Carper	13DV13683	2688

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EXAMINER

NGUYEN, KIMBERLY T

ART UNIT PAPER NUMBER

1774

DATE MAILED: 12/05/2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

111-3

<b>Office Action Summary</b>	<b>Application No.</b> 09/626,981	<b>Applicant(s)</b> CARPER, DOUGLAS MELTON	
	<b>Examiner</b> Kimberly Nguyen	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 19-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-34 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: ____                                     |

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## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to a fiber reinforced composite article, classified in class 428, subclass 292.1.
- II. Claims 19-34, drawn to a method for making a fiber reinforced matrix composite, classified in class 427, subclass 180.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by a materially different process such as laminating, coating, or adhering the first and/or second fibers to the matrix or by making two matrix composites and adhering them together with the fibers in-between.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Rodney M. Young on November 14, 2001 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims

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19-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claims 1 and 13**, it is unclear what Applicant means by the article “during operation experiencing concurrently” a plurality of temperatures and stresses. It is unclear *how* the article experiences the temperature and stress and under what type of operation. Further, the phrase “during operation experiencing” appears to be part of a process step although no process is claimed. ✓

In **claim 1, 3, and 13**, it is unclear how the first and second fibers have a strength greater than the stress. It is not clear whether a measurement of strengths and stresses would be in the same unit so that one would be able to measure if the strength is greater than the stress. ✓

In **claims 1, 3, and 13**, it is not clear what kind of stress that the fibers undergo. ✓

***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 2, 4, 6, 8-10, 13-14, 16, and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by Parthasarathy et al., U.S. Pat. No. 6,251,815 B1.

Parthasarathy shows a thermal gradient resistant ceramic composite (member) used in exhaust components in jet and rocket engines comprising a ceramic alumina and silica matrix (column 1, lines 36-41 and column 2, lines 64-67 and claim 4) and mats or stacks (fabrics, weaves) of fibers comprised of Nextel 610 and Nextel 720 (alumina and aluminosilicate fibers) (column 1, lines 37-40 and column 2, lines 60-63). Parthasarathy further shows that different fiber types which have different coefficients of thermal expansion are used in selected regions of the composite structure such that the stresses resulting from differences in their thermal expansivity are opposite the stresses imposed by differences in temperature during use (column 4, lines 16-45). In addition, Parthasarathy shows that the fibers in a hot region (first region) should have a lower coefficient of thermal expansion than fibers in the cool region (second region) (column 4, lines 45-51 and Figure 3).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 3, 5, 7, 11-12, 15, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Parthasarathy et al., U.S. Pat. No. 6,251,815 B1.

Parthasarathy is relied upon as in above for claims 1 and 13.

Although Parthasarathy does not specifically show that the ceramic composite has the relationship as in instant **claims 3 and 15**, the invention of Parthasarathy has the same components of the matrix and reinforcing fibers as in Applicant's instant invention. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make such a composite with the same relationship and it would have been obvious that the invention of Parthasarathy would have the relationship of instant claims 3 and 15 because it is known in the art to use specific fibers in an alumina matrix which would be expected to result in the relationship.

Though Parthasarathy shows first and second fibers are in a ratio of 90:10 (column 5, lines 12-26), Parthasarathy does not show that the fibers included in the ceramic composite are in the range of about 20-70 volume % as in instant **claims 7, 11, and 12**. However, where the general conditions of a claim are disclosed by the prior art (i.e. volume of fibers), it is not inventive to discover the optimum or workable ranges by routine experimentation.

Parthasarathy shows that those skilled in the art would recognize that the hot and cool sides (regions) are relative terms which indicate a temperature differential between the two sides (column 3, lines 31-45) and that the ceramic composite of Parthasarathy is used in combustion and exhaust components in jet and rocket engines; however, Parthasarathy does not show that the sides "experience" the range of first and second temperatures as in instant **claims 5 and 17**. It would have been obvious to one of ordinary skill in the art that the hot and cool sides (regions)

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of the ceramic composite of Partahsarathy could "experience" the temperatures as in instant claims 5 and 17 because the hot and cool sides are of the same components of the instant invention. Additionally, Parthasarathy uses the same fibers Nextel (610 and 720) that Applicant uses so discovering these same temperature ranges would be well within the skill of the ordinary artisan. Further, where the general conditions of a claim are disclosed by the prior art (i.e. use of temperature ranges during operation), it is not inventive to discover the optimum or workable ranges by routine experimentation in order to make a first or second region which would withstand these temperatures.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Nguyen whose telephone number is (703) 308-8176. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

